



**IS352 Science Inquiry
COURSE SYLLABUS: SPRING 2019**

Instructor: Melinda Ludwig
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| COURSE INFORMATION |
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Materials – Textbooks, Readings, Supplementary Readings:

Texts: REVIEWING SCIENCE – 2nd Edition (Cohen, Deutsch, Sorrentino – 2009)
Aquatic WILD Manual (Blue Cover)
(For Navarro Partnership students, both books are available in the Navarro College bookstore.)

Additional materials: notebook or paper for notes, pencils, map colors, rigid metric ruler, scissors, calculator.

Course Description:

Science Inquiry is a course with minimal lecture. The bulk of the course consists of a variety of hands-on, inquiry science activities that target science instruction in grades Pre-K through 8.

Student Outcomes:

1. Through participation in the inquiry science activities, students will gain experience and knowledge that will help them in preparation for the science section of the TExES exam.
2. Students will gain practical and interesting science knowledge and skills appropriate for science instruction in grades Pre-K through 8.
3. Students will increase their own science literacy by participating in the inquiry science activities.
4. Students will gain experience in cooperative learning techniques, which are used as part of teaching science as inquiry.

COURSE REQUIREMENTS

“This course consists of a selection of hands-on, inquiry science activities from a variety of disciplines/sources and is designed to enhance your skills in teaching science to elementary and middle school students. Each day you will participate with members of your group in completing a selection of inquiry science activities.”

Grading

Grading Scale: (90-100% = A; 80-89% = B; 70-79% = C; 60-69% = D; Below 60% = F)

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| Class Participation..... | 10% |
| (Begin with 100 points; 10 points deducted for each absence, regardless of reason.) | |
| Lab Reports/Homework (Average of all grades)..... | 40% |
| (Lab Reports will be primarily group reports; homework is individual.) | |
| Three Major Exams (each one worth 10%)..... | 30% |
| FINAL EXAM (COMPREHENSIVE)..... | 20% |

TECHNOLOGY REQUIREMENTS

N/A

ACCESS AND NAVIGATION

N/A

COMMUNICATION AND SUPPORT

You may contact me about class-related matters at the e-mail address listed on Page 1. I will reply in a timely manner.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures:

Academic Honesty Policy:

Texas A&M University – Commerce does not tolerate **plagiarism** and other forms of **academic dishonesty**. Conduct that violates accepted standards of academic honesty is defined as academic dishonesty. “Academic dishonesty” includes, but is not limited to, plagiarism (the appropriation or stealing of the ideas or words of another and passing them off as one’s own), **cheating on exams or other course assignments**, collusion (the unauthorized collaboration with others in preparing course assignments), and abuse (destruction, defacing, or removal) of resource material.

Disciplinary action for these offenses may include any combination of the following:

1. Point deduction on an assignment.
2. Failure for an assignment.
3. A grade of zero for an assignment.
4. Failure for the course.
5. Referral to the Academic Integrity Committee or department head for further action.
6. Referral to the Dean of the College of Education and Human Services, Business and

- Technology, Arts and Sciences, or Graduate School as appropriate.
7. Referral to the University Discipline Committee.
 8. Communication of student's behavior to the Teacher Certification Office and/or Dean of the College of Education as constituting a reason to bar the student from entering into or continuing in a teacher certification program. Procedures A 13.04, 13.12, 13.31, and 13.32.

Examination Policy

There will be three major exams. Format of each test will include objective items, short answer items, and essay items that address higher level thinking skills. Tests will be taken after all lab work is turned in.

Tests will consist of two parts:

- 1) A laboratory-based part with items that focus on the lab activities completed since the last test. This part will be completed by the group. Any printed resource can be used for assistance with this part. (40 points)**
- 2) A general content part with items that focus on material from the texts, additional reading assignments, videos, and any other material used or discussed in class. This part is completed by each individual student without the use of printed or electronic resources. (60 points)**

The point value for each part also applies to the Final Exam.

The total number of points per test is 100.

Attendance Policy:

It is the prerogative of the instructor to drop students from courses in which they have accrued excessive absences (three or more). However, a student wishing to drop the course should do so. Failure to do so may result in a failing grade for the course.

You are expected to attend each class meeting and to arrive on time. Late arrival may result in a 5 point deduction from your class participation grade.

THERE ARE NO MAKE-UPS FOR LAB ACTIVITIES THAT YOU MISS. A ZERO WILL BE RECORDED FOR ANY LAB ACTIVITY MISSED BECAUSE OF ABSENCE, REGARDLESS OF REASON. YOU ARE STILL RESPONSIBLE FOR CONTENT OF TESTS OR LAB ACTIVITIES THAT YOU MISS. YOU SHOULD CHECK WITH GROUP MEMBERS ABOUT CONTENT AND DATA COLLECTED. NOTE: IF YOU MISS A DEADLINE FOR AN OUT-OF-CLASS ASSIGNMENT (homework, citizen science project, etc.), YOU MAY TURN IN THAT ASSIGNMENT WHEN YOU RETURN TO CLASS.

IF YOU MISS A MAJOR TEST, YOU MUST CONSULT THE INSTRUCTOR REGARDING A POSSIBLE MAKE-UP. ONLY AN ABSENCE DUE TO EXTRAORDINARY CIRCUMSTANCES WILL BE CONSIDERED IN ALLOWING A MAKE-UP TEST. PROPER DOCUMENTATION FOR OF THE REASON FOR THE ABSENCE MUST BE PROVIDED.
BEST ADVICE: SHOW UP ON TIME FOR EVERY CLASS

Additional Requirements:

- 1. All work submitted for grading must be done in pencil. Any drawings/diagrams that involve color must be done with map pencils. No pens or markers. Up to 5 points will be deducted from the grade if ink/marker is used.**
- 2. All numerical answers must include the unit. The answer will be marked wrong, if there is no unit.**

3. Any straight lines used in a lab report must be drawn with a rigid ruler. Up to 5 points will be deducted from the grade if no ruler is used for straight lines.
 4. No food is allowed in the lab classroom. Drinks in cups with lids or drinks in bottles are allowed.
 5. **Extremes in dress are not appropriate for a public or private school classroom. Any style of dress that would not be allowed in a public or private school classroom, or any school location where students are present, is not acceptable in this class. Remember – You are a role model, as well as a teacher, for your students.**
 6. **ELECTRONIC DEVICES must be off and put away during class time, except for the following:**
 - a) You may use the calculator function, if the lab activity requires calculations.
 - b) You may use the timer function, if the lab activity requires timing.
 - c) You may use the light function, if the lab activity requires a source of illumination and a light source is not already provided.
 - d) You may access the Internet with your device **ONLY** to complete an in-class STEM assignment. (Activities from the new Picture Perfect Science STEM books)
- NOTE:** You may not use your electronic device to take photos/videos of class activities to post on social media. There are potential copyright and liability issues.
7. You are expected to read and keep any handouts of additional information on a specific topic that you are given. There may be test questions on content.
 8. **You may not bring your children to class. There are liability and safety issues that must be respected.**

****NOTE: THE INSTRUCTOR RESERVES THE RIGHT TO MODIFY ANY COURSE-SPECIFIC POLICY/PROCEDURE IF EXTRAORDINARY CIRCUMSTANCES EXIST, AND THE INSTRUCTOR WILL DETERMINE THE DEFINITION OF “extraordinary”.**

University Specific Procedures:

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: Rebecca.Tuerk@tamuc.edu

Internship Requirements:

All students applying for internship must attend a mandatory meeting the semester prior to the internship beginning. If you are interning in the fall, the meeting will be in January. If you are interning in the spring, the meeting will be in August.

All students must complete an application for internship. Students must meet the following requirements:

- a) Reading THEA score of 250 or Accuplacer Reading Score of 88 or COMPASS reading score of 90 or ACT score of 23 or SAT Verbal score of 550.
- b) Math THEA of 230, ACT score of 19 or SAT Math Score of 500, grade of C or better in College Algebra.
- c) Writing THEA of 220, grade of C or better in College English
- d) 2.75 GPA overall
- e) 2.5 GPA Interdisciplinary Studies Courses
- f) 2.5 GPA Specialization Courses
- g) 2.5 GPA Professional Development Courses
- h) Completion of all of the following courses: ELED 200, 300, RDG 350, 360,370, PSY 300, 310, SPED 346, IS351 OR 352, MATH 350
- i) Students may not lack more than 9 hours on entering internship. The following may be lacking: MusArtThe 305, one of the IS courses, Math 351, 1 specialization course. All other courses must be complete.
- j) Failure to meet the above requirements will result in not entering internship on time.
- k) Students will not be permitted to take the generalist exam, if they are missing content courses.

Graduation – All students should meet with their advisor 1 semester prior to graduation to ensure that all requirements are met.

**Completion of all requirements for degree (check degree evaluation for errors)
Successful completion of JLE (see advisor)**

Student Conduct:

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment.

You are expected to conduct yourself as a responsible adult. You are expected to show respect to the instructor and to your classmates. Behavior that deviates from this model and that disrupts the educational process can result in your removal from the class.

Nondiscrimination Notice

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information, or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry

Texas Senate Bill – 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University – Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M – Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to

(<http://www.tamuc.edu/aboutUs/policiesProcedures/StandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer). Pursuant to PC46.035, the open carrying of handguns is prohibited on all A&M – Commerce campuses. Report violations to the University Police Department at 903-886-5658 or 9-1-1.

Please be aware of the new campus concealed carry policy issued by Navarro College effective August 1, 2017. You are responsible for reading and knowing this information. Please see link below:
<http://navarrocollege.edu/boardpolicies/section-gj-1/>

COURSE OUTLINE / CALENDAR

DISCLAIMER: The instructor reserves the right to make changes to the schedule of the class. Any alterations will be announced by the instructor in class, on ecollege, or via email. Students who do not attend class, log into ecollege, or check their email assume full responsibility for missing changes to the course.

| Date(s) | Activities | Assignments for next class session | Student Outcomes Addressed |
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| Th 1/17 | Intro to Course Review Cooperative Learning Intro to Aquatic WILD program: "Walk Through the Guide" Activity – Water Safari, pp. 37-43. Inside & Outside (Weather permitting.) | Read pp. 61-67 and pp. 95-96 in <u>Reviewing Science</u> . Complete Review Questions, Part 1, on pp. 67-69 and pp. 97-98. Due next class. | 1,2,3,4 |
| Th 1/24 | Review forms of energy, concentrate on properties of light & the electromagnetic spectrum. LAB – Mirror, Mirror*(K-2) LAB – Sunshine on My Shoulders*, including UV activities. (K-6) | Read Ch. 2, pp. 61-100 in <u>Reviewing Science</u> . Complete Review Questions, Part 1, on pp. 67-69, 73-74, 84-85, 90-91, and 97-98. Due next class. | 1,2,3,4 |
| Th 1/31 | Discuss Forms of Energy and Energy Transformations. Rotation LAB – Investigating Energy | Read pp. 192-193 in <u>Reviewing Science</u> . Complete Review Questions, Part 1, on pp. 193-195. Due next class. Study for TEST #1. | 1,2,3,4 |
| Th 2/7 | Discuss Evolutionary Theory and Natural Selection. Video: "How Does Evolution Work?" LAB – Bird Beaks and Natural Selection LAB – Beaks Are For The Birds*(K-2) Take TEST #1 when lab reports are finished. | Read pp. 153-159 and pp. 186-189 in <u>Reviewing Science</u> . Complete Review Questions, Part 1, on pp. 160-161 and pp. 190. Due next class. Read handout on Founder Mutations. | 1,2,3,4 |
| Th 2/14 | Video Clip – DNA Structure and Function Review: Basic Genetics & Founder Mutations Activity – Human Genetics Survey LAB – Isolating Strawberry DNA | Read Handouts on the Brain, Nervous System and the Senses. | 1,2,3,4 |

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| Th 2/21 | Review the structure of the Human Brain and Nervous System; the role of the Senses LAB – Exploring the Senses Sight Hearing Smell Taste Touch | Read pp. 221-236 in <u>Reviewing Science</u> . Complete Review Questions, Part 1, on pp. 227-228 and pp. 236-240. Due next class. Read handout on Barn Owls. | 1,2,3,4 |
| Th 2/28 | Video clip on collecting and analyzing owl pellets. Discuss trophic levels, food chains, food webs. LAB – Owl Pellet Dissection LAB – Mystery Pellets*(3-6) | Read pp. 175-179 and pp. 206-210 in Aquatic WILD Manual. Read handout on water quality. | 1,2,3,4 |
| Th 3/7 | Discuss Riparian Zones and Water Quality parameters. Visit the campus pond. Describe the area, collect a sample of pond water, and perform the tests for pH, Nitrogen, Ammonia, and Dissolved Oxygen, using the Pond Water Tour Kit. Return to class to finish the Analysis. Dress for outside, including long pants and close-toe shoes. Also, complete the separate activity “What’s in the Water?” Begin Moon Journal | Read pp. 98-100 in Aquatic WILD Manual. Complete the activity by making a drawing of a fish that shows the adaptations from the four cards you were given. Study for TEST #2 | 1,2,3,4 |
| Th 3/14 | Out of Class assignment “Fashion a Fish” | Read pp. 257-260 in <u>Reviewing Science</u> . Complete Review Questions, Parts 1 and 2 , on pp. 261-263. Due <u>next class</u> . | 1,2,3,4 |
| Th 3/21 | Discuss fossilization, fossil types, methods of interpretation and analysis of specimens. Activity – Make a plaster cast of a fossil specimen, using a mold. LAB – Observations and Analysis of real fossil specimens. Take TEST #2 when lab report is finished. | Read handout on coral reefs and the animals that live there. | 1,2,3,4 |
| Th 3/28 | Discuss the importance of coral reefs and the animal community they support; consider threats to coral reefs caused by global warming and aquatic pollutants. LAB – Over in the Ocean*(K-2) Discuss GLOBE at Night Project. | Read pp. 189-195 in Aquatic WILD Manual. | 1,2,3,4 |
| Th 4/4 | Discuss impact of plastics pollution on the environment and aquatic wildlife. LAB – Plastic Voyages Turn in Moon Journal | Read pp. 75-78 and pp. 246-250 in Aquatic WILD Manual. | 1,2,3,4 |

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| Th 4/11 | Video Clips on Salt Marshes/Estuaries and Sea Turtles Activity – Marsh Munchers Activity – Turtle Hurdles Turn in GLOBE at Night Confirmation Sheet. | Read handouts on “Our Blue Planet” activities. | 1,2,3,4 |
| Th 4/18 | Using selected online resources and print pages from “Our Blue Planet”* activity (K-2), complete the investigation of Earth’s landforms and bodies of water. | Read handouts from Flying WILD. STUDY FOR TEST #3. | 1,2,3,4 |
| Th 4/25 | Discuss habitats and adaptations of animals who live there. Activity – Home is Where the Forest Is. Take TEST #3 when activity is finished. | Read handouts from Picture Perfect STEM Book. | 1,2,3,4 |
| 5/2 | Discuss how the ocean floor was surveyed and what surprises scientists learned. Discuss geological processes that produce mountains. Activities – Ocean Floor Discoveries and How Mountains Are Made*(3-5) | STUDY FOR FINAL EXAM. | 1,2,3,4 |
| 5/9 | FINAL EXAM (Comprehensive) | n/a | n/a |

***Picture-Perfect Science Lesson Activities**

CHILDREN’S LITERATURE BOOKS REFERENCED:

- The Sun is my Favorite Star by F. Asch
Beaks by Sneed B. Collard, III
Hello, Red Fox by Eric Carle
Butternut Hollow Pond by Brian J. Heinz
Barn Owl by Sally Tagholm
Boy, Were We Wrong About Dinosaurs! By Kathleen Kudlinski
Near One Cattail by Anthony D. Fredericks
Earth’s Landforms and Bodies of Water by Bobbie Kalman
Solving the Puzzle Under the Sea: Marie Tharp Maps the Ocean Floor by Robert Burleigh
How Mountains Are Made by Kathleen Weidner Zoehfeld

Important Astronomical Dates for 2019

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| February 3_{CQ} | August 7_{CQ} |
| March 20_{VE} | September 23_{AE} |
| May 5_{CQ} | November 7_{CQ} |
| June 20_{SS} | December 21_{WS} |